Concrete Repair Solutions Portfolio for Nuclear Facilities

BASF fully understands the regulator requirements of the NRC for safety related materials. We have trained customer service, production and quality control teams that monitor dedicated commercial grade materials from production to delivery site.

Easy to apply and fast curing concrete repair materials allow high quality, durable repairs with fast return-to-service and radiation resistance.

APPLICATIONS
- Nuclear Safety Applications
- Commercial Grade Dedication
- Cooling towers
- Secondary containment areas
- Floors and walls
- Honeycomb and rock pocket defects
- Structural and surface repair
- Corrosion of reinforcing steel, protection and repair
REPAIR MORTARS

MasterEmaco S 466CI
Flowable structural-repair concrete with integral corrosion inhibitor
Approved for use in Nuclear Safety Related applications, Compliant with ASME NQA-1 and US NRC 10CFR50 Appendix B
A flowable, shrinkage-compensated repair concrete. It is designed for large volume repairs, including structural elements in applications from 1” (50 mm) to full depth. It has a unique formulation that provides excellent bond, resistance to sulfates and chlorides, high electrical resistivity, low permeability, high-compressive strengths, and protection from corrosion.
- Interior and exterior
- Large volume structural repairs
- Repair or replacement of concrete elements

MasterEmaco S 440MC
Flowable micro concrete
MasterEmaco S 440MC is a one-component, shrinkage-compensated micro concrete. It is designed for large volume structural repairs from 3/4” (19 mm) to full depth.
- Dual expansion system compensates for shrinkage in plastic and hardened states
- Low permeability protects against carbon dioxide and chloride intrusion
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Self-consolidation minimizes honeycombing without vibration
- Only requires the addition of potable water

MasterEmaco S 440
Pourable and pumpable pre-extended, self-consolidating repair mortar
MasterEmaco S 440 is a one-component, shrinkage-compensated, self-consolidating repair mortar. It is designed for large volume repairs, including structural elements in applications from 2” (51 mm) to full depth.
- Dual expansion system compensates for shrinkage in plastic and hardened states
- Low permeability protects against carbon dioxide and chloride intrusion
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Self-consolidation minimizes honeycombing without vibration

MasterEmaco S 440CI
Pourable and pumpable pre-extended self-consolidating repair mortar with integral corrosion inhibitor
MasterEmaco S 440CI is a one-component, shrinkage-compensated, self-consolidating repair mortar that is polymer-modified and contains an integral corrosion inhibitor. It is designed for large volume repairs, including structural elements in applications from 3” (76 mm) to full depth.
- Dual expansion system compensates for shrinkage in plastic and hardened states
- Low permeability protects against carbon dioxide and chloride intrusion
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Self-consolidation minimizes honeycombing without vibration
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Only requires the addition of potable water

MasterEmaco N 425
Non-sag concrete repair mortar with integral corrosion inhibitor for vertical and overhead applications
MasterEmaco N 425 is a one-component fast-setting polymer modified portland cement-based repair mortar for vertical and overhead concrete and masonry surfaces.
- Non-sag consistency able to be placed in 2” (51 mm) thick lifts
- Readily sculpted, shaved, and finished to match existing substrate
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Only requires the addition of potable water

MasterEmaco S 488CI
Sprayable, fiber-reinforced structural repair mortar with integral corrosion inhibitor
Approved for use in Nuclear Safety Related applications, Compliant with ASME NQA-1 and US NRC 10CFR50 Appendix B
MasterEmaco S 488CI repair mortar is a one-component, shrinkage-compensated, fiber-reinforced product that contains an integral corrosion inhibitor. It can be applied vertically or overhead by low-pressure spraying or hand troweling.
- Interior and exterior
- Vertical and overhead
- Severe service environments such as sewer, lift stations, marine structures, and water collection

MasterEmaco S 210SP
Silica-fume-enhanced structural wet- or dry-process shotcrete
MasterEmaco S 210SP is a one-component repair mortar that contains an integral corrosion inhibitor. It can be applied by either the wet or dry shotcrete process.
- Workable and easy to cut and finish when applied using wet process
- Prepackaged quality for bag-to-bag uniformity
- ANSI/NSF 61 certified for drinking water systems

MasterEmaco S 211SP
Fiber-reinforced, silica-fume-enhanced structural wet- or dry-process shotcrete
MasterEmaco S 211SP is a one-component, fiber-reinforced repair mortar that contains an integral corrosion inhibitor. It can be applied by either the wet or dry shotcrete process.
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Prepackaged quality for bag-to-bag uniformity
- ANSI/NSF 61 certified for drinking water systems

MasterEmaco S 440
Pourable and pumpable pre-extended, self-consolidating repair mortar
MasterEmaco S 440 is a one-component, shrinkage-compensated, self-consolidating repair mortar. It is designed for large volume repairs, including structural elements in applications from 2” (51 mm) to full depth.
- Dual expansion system compensates for shrinkage in plastic and hardened states
- Low permeability protects against carbon dioxide and chloride intrusion
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Self-consolidation minimizes honeycombing without vibration
- Self-consolidation minimizes honeycombing without vibration
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Only requires the addition of potable water

MasterEmaco S 440CI
Pourable and pumpable pre-extended self-consolidating repair mortar with integral corrosion inhibitor
MasterEmaco S 440CI is a one-component, shrinkage-compensated, self-consolidating repair mortar that is polymer-modified and contains an integral corrosion inhibitor. It is designed for large volume repairs, including structural elements in applications from 3” (76 mm) to full depth.
- Dual expansion system compensates for shrinkage in plastic and hardened states
- Low permeability protects against carbon dioxide and chloride intrusion
- Excellent freeze/thaw resistance for durability in cold, wet environments
- Self-consolidation minimizes honeycombing without vibration
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Only requires the addition of potable water

MasterEmaco N 425
Non-sag concrete repair mortar with integral corrosion inhibitor for vertical and overhead applications
MasterEmaco N 425 is a one-component fast-setting polymer modified portland cement-based repair mortar for vertical and overhead concrete and masonry surfaces.
- Non-sag consistency able to be placed in 2” (51 mm) thick lifts
- Readily sculpted, shaved, and finished to match existing substrate
- Very low chloride permeability and an integral corrosion inhibitor protects reinforcing steel
- Only requires the addition of potable water
REPAIR MORTARS (Cont’d)

MasterEmaco T 545 and T 545HT
Very rapid-setting chemical action mortar
MasterEmaco T 545 is a one-component magnesium phosphate-based mortar. Offered in two formulations: T 545 for ambient and substrate temperatures below 85° F (29° C) and T 545HT for ambient and substrate temperatures ranging from 85 to 100° F (29 to 38° C).

- Single component to just add water and mix
- Wide temperature use range from below freezing to hot weather exposures
- Air cure only, no wet curing compounds required
- Coefficient of thermal expansion similar to Portland cement concrete for more permanent repairs
- Higher sulfate resistance than conventional mortars

CRACK REPAIR BONDING

MasterEmaco ADH 326
Liquid epoxy concrete bonding adhesive with long pot life
MasterEmaco ADH 326 is a two-component 100% solids liquid epoxy bonding adhesive. It is designed for use in warm environments or applications requiring a long working time.

- Bonds to damp concrete surfaces
- Very long working time
- Versatile formulation allows extension with properly graded sand
- High-build liquid allows adequate coverage in a single application

MasterEmaco ADH 327RS
Liquid epoxy concrete bonding adhesive with short pot life
MasterEmaco ADH 327RS is a two-component 100% solids non-sag epoxy adhesive. It is used for vertical, overhead, and horizontal applications. It is recommended for short-term or moderate-intensity loads and application when ambient or concrete-surface temperatures are in the 32 to 50° F (0 to 10° C) range. It may also be used between 50 and 70° F (10 and 21° C) when rapid curing is required.

- Moisture insensitive bonds to damp surfaces
- Ease of installation
- Non-sag gel consistency ideal for overhead application
- Cures quickly at moderate temperatures to minimize downtime

MasterInject 1380
General-purpose structural concrete-bonding injection resin
MasterInject 1380 is a two-component low-viscosity liquid epoxy adhesive for pressure-injection grouting.

- Low viscosity; can be injected in cracks from 0.005–0.25" (0.125–6 mm)
- Solvent free, environmentally friendly
- Fast cure rate, quickly returns repaired areas to service
- High heat-deflection temperature (HDT), provides increased resistance to creep and stress relaxation
- 2 to 1 mix ratio, easy to mix and use

CORROSION

MasterProtect 8000CI
Advanced corrosion inhibiting treatment for steel reinforced concrete
MasterProtect 8000CI is a surface-applied clear liquid that penetrates concrete and provides an organofunctional molecule to inhibit the electrochemical corrosion process between the rebar and the chloride ions, oxygen and moisture in the concrete.

- Dries quickly and is easy to apply for faster installation time
- Effective in heavily chloride-contaminated and carbonated concrete to dramatically reduce corrosion rate
- Normally does not require removal prior to additional coating applications so it takes less labor to apply than many other corrosion inhibitors

MasterProtect 8065CP / 8105CP / 8150CP
Embedded galvanic anodes for the protection of reinforcing steel
MasterProtect 8065CP, 8105CP and 8150CP are engineered discrete zinc anodes encased in a proprietary mortar. Integral galvanized tie wires permit easy connection to concrete reinforcement. As a key component of a complete concrete repair strategy, the sacrificial zinc core generates a small electrical current as it is consumed, protecting the reinforcing steel from accelerated corrosion.

- Chelation-Driven System
- Lower pH mortar
- High grade ASTM B418 type II zinc alloy
- Pre-twisted tie wires
- Increased zinc surface area
- Generates small current as it deteriorates, to protect reinforcing steel
- Enhanced transport of reaction by-products
- Not affected by carbonation or auto-corrosion
Master Builders Solutions from BASF

The Master Builders Solutions brand brings all of BASF’s expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction. The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair and protection solutions, performance grouts, performance flooring solutions.

Master Builders Solutions products from BASF for the Construction Industry:

- **MasterAir®** Solutions for air-entrained concrete
- **MasterBrace®** Solutions for concrete strengthening
- **MasterCast®** Solutions for manufactured concrete product industry
- **MasterCem®** Solutions for cement manufacture
- **MasterEmaco®** Solutions for concrete repair
- **MasterFinish®** Solutions for formwork treatment
- **MasterFlow®** Solutions for precision grouting
- **MasterFiber®** Comprehensive solutions for fiber reinforced concrete
- **MasterGlenium®** Solutions for high-performance concrete
- **MasterInject®** Solutions for concrete injection
- **MasterKure®** Solutions for concrete curing
- **MasterLife®** Solutions for enhanced durability
- **MasterMatrix®** Advanced rheology control solutions for self-consolidating concrete
- **MasterPel®** Solutions for water tight concrete
- **MasterPolyheed®** Solutions for high-performance concrete
- **MasterPozzolith®** Solutions for water-reduced concrete
- **MasterProtect®** Solutions for concrete protection
- **MasterRheobuild®** Solutions for super-plasticized concrete
- **MasterRoc®** Solutions for underground construction
- **MasterSeal®** Solutions for waterproofing and sealing
- **MasterSet®** Solutions for workability control
- **MasterTop®** Solutions for industrial and commercial floors
- **MasterWeld®** Solutions for construction adhesives
- **Ucrete®** Flooring solutions for harsh environments

BASF Corporation
Construction Systems
889 Valley Park Drive
Shakopee, MN 55379 USA

Customer Service 1(800) 433-9517
Technical Service 1(800) 243-6739
master builders solutions.basf.us

© 2016 BASF Corporation rev 05/16

LIMITED WARRANTY NOTICE: BASF warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide. If used as directed within shelf life, satisfactory results depend not only on quality products but also upon many factors beyond our control. BASF MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of BASF. Any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. BASF WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on BASF’s present knowledge and experience. However, BASF assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. BASF reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.

® = Registered trademark of the BASF-Group in many countries.